spacecraft perigee substantially clears the Van Allen radiation belts, and where the semi-major axis of the intermediate orbit is substantially less than the semi-major axis of [the] a final orbit, and where the inclination of the intermediate orbit is substantially greater than the inclination of the final orbit;

firing the electric propulsion thrusters to raise the orbit of the spacecraft from the orbit achieved by the chemical propulsion thrusters firing step to near geosynchronous orbit by steering the thrust vector both in-plane and out-of-plane while rotating the spacecraft body and steering the solar array to maintain the sun's illumination on the solar array while not maintaining the solar array rotation axis aligned with the orbit normal and while not maintaining an earth facing panel; and

firing selected ones of the chemical and electric propulsion thrusters to achieve final geosynchronous orbit.

REMARKS

Regarding the status of the present application, Claims 1 and 23 have been amended, and Claims 1-29 are presently pending in this application. Reconsideration of this application is respectfully requested. A Petition and fee for a three month extension of time is enclosed.

Claims 1-14, 16, and 23-29 were rejected under 35 U.S.C. § 102(b) as being anticipated by a paper by F. Porte, et al., entitled "Benefits of Electrical Propulsion for Obit Injection of Communication Spacecraft". The Examiner indicated that page 2 columns 1-2 disclose the subject matter recited in Claim 1. Claims 1 and 23 have been amended to address the Examiner's issues. It is respectfully submitted that the Examiner's conclusions regarding the patentability of the present invention are in error.

The Porte et al. paper discusses three orbit raising strategies. The first strategy involves "maintaining the standard injection scenario in GTO" (geostationary transfer orbit). "After a perigee raising manoeuvre using CP [chemical propulsion] up to a certain altitude, the Electric Propulsion System (EPS) is operated around apogee to raise perigee up to geosynchronous altitude."

It is stated that the first strategy has problems which are that "The EPS is used on a thrusting arc which is only a fraction of the transfer duration", and "In order to minimize the transfer duration, the thrusting arc must be large which results in an apogee raising. This may however be solved by injecting the spacecraft in a transfer orbit with a subsynchronous apogee altitude".

As per claims 1 and 23, the Porte et al. paper discloses launching a spacecraft; a spacecraft with chemical and electric propulsion; and a solar (array); firing the chemical propulsion at apogees of the intermediate orbits to raise the orbit to geosynchronous; steering the thrust vector both in plane and out of plane while rotating the spacecraft body and steering the solar array to maintain the solar; firing the electric thrusters to raise the orbit from where the chemical thruster raised the; and selectively firing the chemical thruster, all on page 2, columns 1-2.